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Aquaculture in Alberta

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Allen's Trout Farm Inc., near Calgary

Bob Allen could be called the father of Alberta's commercial trout farming business, seeing as he has raised trout for more than 40 years. Bob started in the early 1960's while farming in the Milo area, north of Vulcan. It was his decision to dabble in trout, because as he put it, "on that farm all I could raise was rocks."

He began his fish farm by constructing raceways below a small but deep 50-acre dam. Fingerlings were imported from the USA and placed in these raceways for growing out trout for pond stocking markets throughout Alberta. Water from the dam naturally siphoned through the raceways year round. Bob also stocked rainbow trout in the dam. These fish were routinely netted and sold only to the table food market. Because space at the Milo site was limited, Bob decided to move on and relocate his trout farm.

The next site for Allen's Trout Farm was on the headwaters of the Little Bow River, now in the town of High River. This fish farm site only lasted a couple of years, until Bob found the location of his dreams. While flying from Calgary to Vancouver in the dead of winter he spotted a place just outside of Calgary, with springs flowing through it and the water was not frozen over! He bought the land and in 1972 started up the present site for Allen's Trout Farm, in the Elbow River valley. Soon after, Bob became one of our province's first entrepreneurs to try his hand at U-fish or paid fishing. He stocked ponds located at "Happy Valley", a campground area on Calgary's outskirts.

Bob's ventures did not conclude here though, as he expanded in the late 1990's by purchasing a fish farm near Hillspring, Alberta, a large indoor recirculation fish facility in Manitoba (since sold), and even opened up a fish store in Calgary to sell "Allen's fresh farm-raised trout and char."

In some of the best years of stocking trout, Allen's Trout Farm was able to consistently supply nearly 600,000

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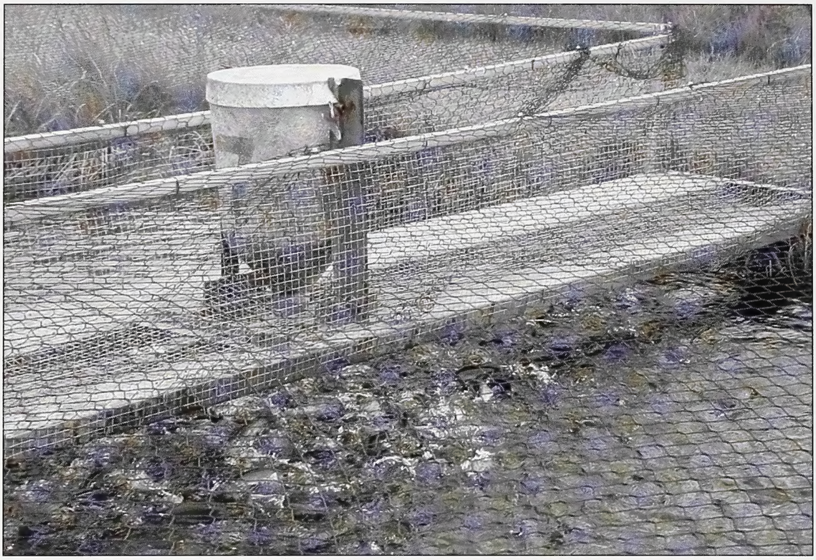
Alberta
AGRICULTURE, FOOD AND RURAL DEVELOPMENT

fish a year. Now, Bob's farm raises and sells about 200,000 rainbow trout, catering to the larger 8 inch to 3 pound range.



In his more than 40 years of business, Allen's Trout Farms have been free of any major trout diseases. Now, Bob raises only triploid or sterile rainbow trout. Every year, one batch of fish eggs comes from Troutlodge, Washington. Bob hatches these out on-site in a hatchery facility he designed and constructed. As backup, Bob always purchases 50,000 fingerlings from another Alberta trout producer near Edmonton.

Bob Allen has been there and done it. He firmly believes "Alberta's trout culture is not yet best served by going down the path of indoor recirculating aquaculture. These types of facilities are constrained by water flow restrictions, high set-up and maintenance costs, meaning their operators can only raise a few thousand trout yearly." At his Elbow Valley facility Bob is able to grow far more fish than most other Alberta fish farms combined, with the least amount of production problems and costs. Bob suggests, "his best customers are commercial fish farmers who have suffered major fish losses due to system problems."

Although Bob has tried his hand at raising trout and Arctic char for the table food market, he has major concerns with the present value-chain setup, from supplier to broker to consumer. Buyers and brokers have not seemed prepared to help fish farmers during their startup to get a good consistent volume of fish. Their famous words are "call us when you're able to bring us fish each week." Allen comments that the buyers need to sit down as a team with the fish producers, to work out developing the trout table market. This would allow fish farmers some leniency when working out their actual production and business planning.

This year, after about 30 years of trout farming in the Elbow River Valley area, Bob finally decided to eliminate his bird predator problems after losing many of his trout to blue herons and ospreys. Allen covered all of his raceways with netting, remarking that he should have done that years ago. Even mallard ducks were causing trouble in the winter by flocking to the raceways and feasting on expensive fish feed. They learn quickly how to operate and empty the self feeders.

Are there areas for growth? "Yes," says Bob, "there could be. I think the Alberta Conservation Association (ACA) should buy more private fish for stocking their landlocked lakes. Farmers can raise fish cheaper than the government hatcheries and all the fish from private farms are from certified disease-free facilities. All of my fish, for instance, are triploids, which means they cannot reproduce. Most of the farms now rely on the government (ACA) contracts to survive and I feel if more fish were purchased by the government, the prices would be very competitive and would be beneficial for both the fishing public and the fish farm industry."

Tired of trout cooked the same old way, buttered, floured, and pan-fried, then you might want to consider buying a trout recipe book from Martha Klontz of Moscow, Idaho. It has over 190 trout recipes, from starters, smoked and pickled fish, to caviar, soups, sauces and main dishes. Years ago, this editor met Martha and her daughter during an Idaho Trout Farmers conference. They were both cooking up savoury trout meals for all the attendees to feast on.

Trout Fillets with Croutons and Lemon Caper Sauce

1 slice firm white bread, crust trimmed
4 6 ounce boneless trout fillets
1 medium lemon, peeled, sliced and chopped
2 teaspoons finely chopped parsley, for garnish
4 1/2 ounces butter
Salt and freshly ground white pepper
2 teaspoons drained capers

Preheat oven to 250°. Cut the bread into 1/4 inch cubes, bake in a single layer until dry, 10-15 minutes. Melt 1 tablespoon butter in small skillet; add bread cubes and cook, stirring, until lightly browned. Season fillets with salt and pepper. Melt 2 tablespoons butter in large skillet until hot. Cook the fish in a single layer until just opaque, about 3-4 minutes per side, adding more butter if needed (if necessary, cook in two batches).

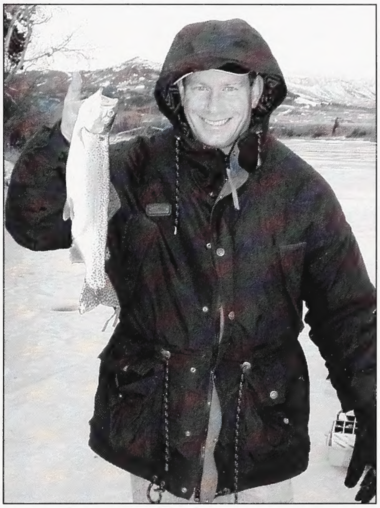
Remove fish and keep warm while preparing the sauce. Melt 4 tablespoons of the butter in the skillet over medium-low heat. Stir constantly until the butter is light brown, about 3 minutes. Add the lemon and capers to the skillet. Reduce heat and cook, shaking the pan several times, until the lemon and capers are heated through, about 1 minute. Taste for seasoning. Place a fillet on warm plate, spoon sauce over, sprinkle with the croutons and parsley. Serves 4.

To obtain this recipe book **"To Cook a Trout"** make a money order out for $12.00 US and mail to Martha Klontz, 1908 East E Street, Moscow, Idaho 83843. You can email Martha at *diklontz@msn.com* for more information.

Why Stock Trout in Your Pond?

Ever wonder about the benefits versus the hardships of having a fishpond stocked with trout. First, let's look at the economics. If you stock, say, an average 300 trout each year in your dugout, it will cost about $450 (6 to 8" trout @ $1.50 per fish). If only 250 fish survive till late fall or early winter, they could easily reach the one pound or better mark. Trout in the stores are selling for, around $5 a pound. Now you've added more than double value to your production, without any input costs.

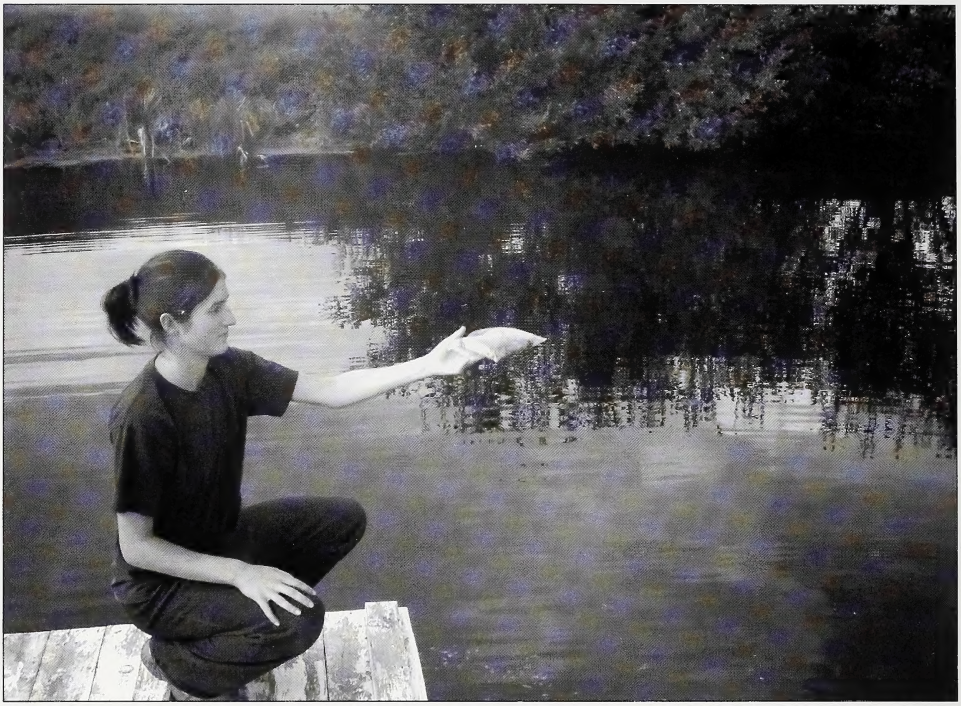
But the specialists recommend that you aerate your pond and you might need to supplementary feed your fish. So, let's say you required a bag of fish feed during the summer. This increases your costs another $40. And what about costs for electricity to the aerator; this could be anywhere from $5 to $13 per month, depending on the make, model and horsepower of the air pump. For the whole year's electricity, perhaps add another $60 to $160. Now your fish are costing just over $600, still only about half the cost of buying trout from the supermarket. However, you have gained a supply of healthy rainbow trout, grown on your own property and harvested fresh at your convenience. At the same time you get to enjoy the outdoor air, keeping yourself active, and sharing in the camaraderie of fishing with grandchildren, other relatives and friends.



Could you set a cost on recreational pond fishing, say, similar to golfing, bowling or fitness clubs? Can you set a price on your granddaughter's smile, as she's yelling to you "there's a monster fish on my line," as she finally lands her first fish? Some people even value their fish so much that they never go fishing, have names for each one of their trout and have a stroll each evening out to the pond to feed them! Is there a better remedy… to ease the tensions so typical of today's daily life?

Yes, the economics show that you won't lose money by stocking a few hundred fish in your pond. In fact, if you choose the fish as a table-ready baked trout or pan-fried or simply just smoked, you win in the pocket book by growing your own.

Water Colorant Helps Control Algae By Filtering Out Sunlight For Plant Photosynthesis



Joanne, summer student at Circle M Trout Farm, tosses a bag of dissolvable blue water colorant into the pond

Do you have a problem with long hair type algae on your shoreline or lots of pesky weed growth in your dugout? "Maybe try blue dye," says Marshall Grekul from St Paul, Alberta. "We used to rake out algae all summer but now the mats of algae along our shorelines are gone and our water is a beautiful dark blue colour."

Using blue dye to colour water and discourage plant growth is not something new. Golf courses have been using it for years and now fishpond owners are starting to use it. Plants need light for produce photosynthesis and growth but not just any light. Light in the red and blue wavelengths are critical for growth. Application of blue dye does not reduce the light available to the plants. Instead, it acts similar to a blue filter on a camera, restricting all the blue light entering the camera. With this dye in the water, light enters all the way to the bottom but the blue light is absorbed and not available to the plant. This results in submerged water plants being unable to properly photosynthesize and grow.

The same is true for the mats of algae that first begin to grow on the pond's bottom and then suddenly surface in the warm summer's heat. With the dye in the water, they cannot grow and the bottom of your pond remains bare and algae free. Shoreline plants like cattails are not affected because they are rooted and have leaves above the water to catch sunlight.

"Application of blue dye is very easy," says Grekul. "We first used dissolvable plastic bags, so all you had to do was throw the dye bag on the water and watch the colour disperse. This year we used a liquid concentrate but I think I like the bags better".

Cost of treating a normal dugout is about $90 and the treatment can last all season. The blue dye is harmless to fish and animals and completely safe. "Now when we pick up our fish we pick up our dye and we are set for the season," say Grekul.

Pond colorants are available in Alberta under a variety of names.

This article was contributed by Doug Millar, a director of the Alberta Aquaculture Association and owner of Circle M Trout Farm, near St. Paul, Alberta.

For more information on this product and availability call Doug Millar at 780 724-2002 or email him at *millar12@telusplanet.*

Aquaculture Research Highlights 2005

Five major aquaculture projects are currently underway in Alberta: silver carp for biological algae control, improving rainbow trout feeds in Canada, aquaponics research, preliminary investigation of recirculating system biofilter problems, and assessment of alkaline tolerant rainbow trout.

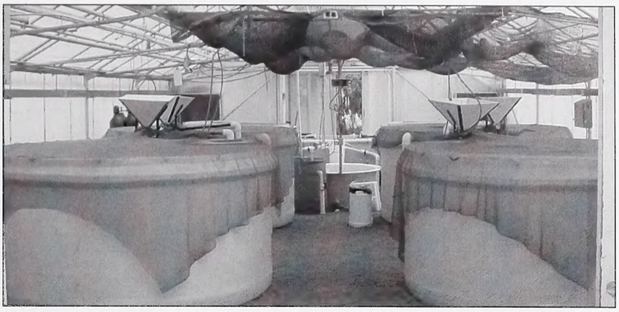
Silver carp for biological algae control - this is the second year of a three-year field study, where triploid silver carp have been placed in fourteen secure farm ponds throughout the Province. Initial results have shown that most silver carp survive over winter when in good condition and when ponds have aeration, however some ponds did suffer high fish losses.

Dan Watson, AAFRD's research biologist, weighing silver carp

Algae control seems to be fairly good in ponds where fish have survived and the data from the upcoming third year should help us assess the long term implications of silver carp stocking.

Improving Canada's rainbow trout feeds - two of Alberta's commercial aquaculturists are contributing to a countrywide evaluation of trout feed from Denmark. This low phosphate feed will be compared to domestically available fish feeds. The Danish feed purportedly provides excellent food conversion rates near 1:1, with great reductions in phosphorus loading. The study is underway in other Provinces, with Alberta being on stream later in 2005. Heading this project is Dr. Grant Vandenberg of the University of Laval.

Aquaponics research - continues at the Brooks Crop Diversification Centre. The project has been blessed with three years of funding from the Federal Fisheries & Oceans research funds. Further evaluation of system design, production potentials and economics are planned. Currently the facility is into full production of basil, using tilapia as the fish source. Initial results show that niche markets growing high-end crops can be enough to provide a major income. Part of the project includes cooperation with other private aquaponics growers in the Province, including Circle M Trout Farm, MDM Aquafarms, and the Aquaculture Centre of Excellence at the Lethbridge Community College. Complete water conservation and waste management are important outcomes of aquaponics.



Aquaponics at the Brooks Crop Diversification Centre showing tilapia culture tanks, housed in one greenhouse

Preliminary investigation of recirculating system biofilter problems - Many commercial fish culturists have reported crashes in their biological filters. This seems to occur most often during peak fish loads. A preliminary data gathering exercise based on functioning fish farms will aid us in determining how Alberta producers may be able to reduce these problems.

Assessment of alkaline tolerant rainbow trout - the purpose of the project is to compare the Blackwater strain of rainbow trout to commonly cultured rainbow trout for growth rates and survival characteristics under Alberta conditions. The study will determine the suitability of various strains for commercial fish production and the growth and survival rates in high alkaline, pH and TDS waters.

Different strains of rainbow trout may perform better in alkaline areas of Alberta

A Tribute to Doug Smith

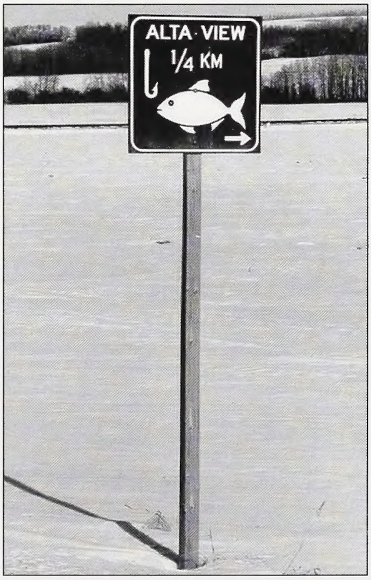
Doug Smith holding onto a snag of hooks taken from one of his ponds during fall seining in 2004

This past September of 2004 Alberta's aquaculture industry lost one of its longstanding members, Doug Smith, a good friend to many fish farmers and government. Doug was one of the early pioneers of U-fishing, where visitors would fish for trout at his private ponds. One year he set a record of nearly 3,000 people visiting his farm, just to fish; a place called AltaView Trout Farm, on the west side of Antler Hill, just north of Innisfail.

Doug began his fish business in the 1970's, while operating a nearby hog farm. It was simple, with just a few fish tanks to grow out fish for his pond. Most days one could observe a few local old-timers stop by, just to fish at his pond. Doug moved to the Antler Hill fish farm in the early 90's to start up AltaView Trout. The farm site consisted of an indoor recirculating water facility to grow out his trout and six outdoor ponds. If Doug wasn't growing rainbow or brook trout, he was raising goldfish and koi for the pet and backyard pond market. He even tried out African clawed frogs for the aquarium pet industry.

Doug was one of those rare self-taught people, who learned by himself how to run a sound facility, even successfully spawning goldfish and koi. Things change, though, and Doug got into consulting for fishpond construction and aeration. Doug, fortunately was not a modern consultant yet, because he charged very little for his services and the information he handed out was not third party, but from Doug's own experiences.

I always asked Doug to speak at our annual "Basic Principles of Aquaculture" course, as many in the class would comment "having a real fish farmer talk, like Doug Smith, made the course practical." I can still remember Doug's gravelly voice and the way the audience was captivated by his knowledge. Doug wanted every fishpond owner to succeed in raising trout; even putting on a few "Fish Pond" courses by himself. I remember Doug as an ambassador to aquaculture, who loved to explain the art of building ponds, aeration, and feeding fish to many visitors.



During tours to Doug's fish farm and observing the various fish tanks, compressors and bio-filters he used on the farm, you could tell Doug Smith was an innovator. He even devised spawning mats for his koi, simply by using plastic twine from hay bales. Doug was Alberta's largest U-fish farmer, happy to bring in busloads of school kids, so that they and their teachers could learn about fishing. He loved working with people and the outdoors. We will truly miss him.

The Editor

Alberta's Aquaculture Industry Update

Activities - The Aquaculture Centre of Excellence located on the campus of the Lethbridge Community College is now in its third season. This year we were able to produce 20,000 certified triploid grass carp fingerlings. We hope to have approximately 8,000 of these large enough to use to control aquatic vegetation in private, licenced ponds in the spring of 2006. They will be sold into the retail market through members of the AAA.

Our success in spawning was largely due to our conditioning of the broodfish. They required higher water temperatures for a longer period of time than we previously thought to come into suitable condition for spawning. Our success in inducing triploidy was high, generally over 95%. Success in rearing the larval stages was also important, accomplished through a new larval rearing circuit and provision of special live foods.

Other research being undertaken this year includes: spring viremea testing protocol for grass carp, biological filter evaluation, and PCR molecular disease typing. During the past year the facility also served as a holding area to rear silver carp, Blackwater trout for alkaline water, and rainbow trout for student training.

Most of the research at ACE is through collaboration with Alberta Agriculture and the Alberta Aquaculture Association. Other government agencies and private industry have also initiated research at ACE.

Check out our website at *www.grasscarp.org* for more information.

For information on the Aquaculture Centre of Excellence, including cooperative projects or tours, contact the ACE at 403-317-3531, Clay Boyes (cell) 403-308-6214 or John Derksen at 403-329-7294.

Fish Culture Licencing - Alberta's Aquaculture Section has 3895 current fish culture licence holders for 2005. This number includes 3812 licences to stock fish in recreational ponds and 83 licences for commercial aquaculture. These numbers are consistent with licences issued last year.

Responsibility for all licencing of aquaculture under Alberta Agriculture, Food & Rural Development (AAFRD) has recently been shifted. Now AAFRD's Meat Inspection and Regulatory Services Division will manage this obligation, leaving the Diversified Livestock Unit to concentrate on promoting aquaculture in the Province.

A report on aquaculture licencing policy in the restricted and prohibited areas of Alberta has been placed on the Internet. The public can review this document at *http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/div8049*. Changes may be implemented to licencing procedures to reflect advances in safe aquaculture practices.

Lorne Louden, President

The Alberta Aquaculture Association plans to hold its next annual general meeting November 26 at the Nisku Inn in Nisku, Alberta. Again, it will be complemented by an annual industry update or in service training, and held in conjunction with the Western Freshwater Aquaculture Association.

During 2004, the meeting was held in Nisku, Alberta, where a new Board of Directors was elected, now including: Lorne Louden, president; Curt McNaughton, vice president; Victoria Page / Dan Menard, secretary/treasurer, and three directors: John Fletcher, Sandy McLean and Doug Millar.

The membership agreed to change its name to the Alberta Aquaculture Association (AAA) and move its annual general meeting to the fall when fish culturists can commit more time. For more information, contact your local AAA director or visit the web page *www.affa.ab.ca*.

"Raising Fish in Your Pond" seminars were again successfully completed (eight locations). 2006 course locations will be determined this November. The "Association" set up booths at two acreage days' workshops, near Edmonton. AAA also partnered through financial support for research projects, including biological filtration evaluation and aquaponics. Training subsidies were provided to three industry members.

Recently Formed

Western Freshwater Aquaculture Association

The Western Freshwater Aquaculture Association (WFAA) has begun. Members include representation from Manitoba, Saskatchewan, Alberta and British Columbia. It is planned for this association to:

1. Give better exchange of education and information about land based aquaculture in Canada and the rest of the world.
2. Provide strength to the voices of aquaculture with a view to improving and increasing production, marketing and distribution.
3. Increase markets for locally produced aquaculture products by disseminating relevant information.
4. Strengthen the voices of aquaculture in dealings with government and financial institutions of the produce of prairie-based aquaculture.
5. Improve purchasing capacity for feed, supplies and equipment by sharing demand.

The next meeting will be held in conjunction with the Alberta Aquaculture Association, planned in November 2005.

COURSES, PUBLICATIONS & EV

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Courses

Alberta Agriculture will offer three aquaculture courses this winter. The first set of courses, "Raising Fish in Your Pond" will be offered during February and are planned for various locations throughout Alberta. "Raising Fish" is a three-hour evening course sponsored by the Alberta Aquaculture Association. Participants receive up-to-date instruction from fish farmers and a course manual.

The second course, "Aquaponics" is to be offered in Brooks, Alberta, during the spring of 2006. This planned two-day event will incorporate hands-on training and lectures, intended for those needing the latest information on design construction start-up costs, production, marketing and problem solving.

The third course planned is "Basic Principles of Aquaculture." This cooperative course will be held in Red Deer during late March of 2006. It is a two-day intensive course and includes a manual, hearing from numerous guest speakers and touring nearby fish farms.

To obtain more information on these courses contact: Eric Hutchings, of AAFRD's Aquaculture Section in Lethbridge, toll free by dialing 310-0000, then 381-5574 or dial direct with area code (403) 381-5574.

Agriculture Service Board summer tour for the County of Barrhead, discussing local Silver Carp field project

Publications

A selection of aquaculture fact sheets, publications and videos are available on a short-term loan through the Aquaculture Unit in Lethbridge. Contact person is Judy Chow at (403) 381-5170.

The following government publications are also available on Internet (Ropin' the Web) or by calling AAFRD's Publications Branch (1-800-292-5697):

Aeration of Dugouts or Ponds with Compressed Air. Agdex 716 (B36)

Algae Control in Ponds. Agdex 485/716-2

Biological Weed Control in Alberta using Triploid Grass Carp. Agdex 485/641-1

Constructing Dugouts for Fish. Agdex 485/716-1

Fish Culture Licences. Agdex 485/84-1

Freshwater Aquaculture Industry. AgVenture series Agdex 485/830-1

Predator Damage Control. Agdex 485/685-1

Screening Your Fish Pond. Agdex 485/87-1

Feeding the Fish in Your Dugout or Pond. FS485/50-1

Events

November 15-17, 2005. Skills and Learning for Market Success, Moncton, NB, Canada.

www.nssc.ca/2005hrconference

Dec 6-8, 2005. 56th Annual Northwest Fish Culture Conference: Native Fish, a Challenge for Fish Culture." Boise Idaho, USA.

http://fishandgame.idaho.gov/nwfcc/

Feb 13-16, 2006. Aquaculture America 2006. Riviera Hotel & Casino, Las Vegas, Nevada, USA.

http://www.was.org

Nov 19-22, 2006. Aquaculture Canada 2006. Halifax, NS, Canada. The annual national forum on the business, science and technology of Canadian aquaculture.

http://www.aquacultureassociation.ca

Editor's Notes

This will be the only issue of Aquaculture in Alberta produced for year 2005. If you would like to submit articles for future issues, provide us with input, or to be placed on the mailing list, contact the aquaculture section in Lethbridge at (403) 381-5170 or email *eric.hutchings@gov.ab.ca*.

The Alberta Agriculture, Food & Rural Development's **"Ropin' the Web"** home page is *http://www.agric.gov.ab.ca.* The site contains aquaculture information, accessed by first clicking on the feature "livestock/animals" and then "aquaculture." Any information contained in this bulletin regarding commercial products may not be used for advertising or promotional purposes without permission from Alberta Agriculture, Food & Rural Development and is not to be construed as endorsement of any product or firm by Alberta Agriculture, Food & Rural Development.